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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,520	05/03/2001	Eric Christopher Berg	8070LS&M	7535

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EXAMINER

FERRIS III, FRED O

ART UNIT PAPER NUMBER

2128

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/848,520

Applicant(s)

BERG ET AL.

Examiner

Fred Ferris

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05/23/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. *Claims 1-22 have been presented for examination based on applicant's disclosure filed 3 May 2001. Claims 1-22 have been rejected by the examiner.*

Priority

2. *Applicant's claim for priority based on provisional application number 60/202,010 filed on 4 May 2000 is acknowledged.*

Drawings

3. *The drawings filed on 3 January 2002 have been approved by the examiner.*

Claim interpretation

4. *Applicant's are claiming limitations relating to a simulation process for reliability and maintainability analysis of system failures based collected failure mode data representing a first system, and simulating the negative system effects by executing a reliability simulation on a second system. The examiner first notes that such features are generally inherently available in commercially available reliability and maintainability simulators such as AvSim+, RAPTOR, RAM Commander, and BlockSim. (See: "Comparison of Reliability-Availability Mission Simulators", R. Willis) Further, any reliability simulator that uses known (collected) failure data as part of the simulation model, meets the requirements for collecting a first system failure mode data and executing a computer program simulating a second system as recited in claim 1. That*

is, the second system, namely the platform running the reliability simulator, is executing a simulation model that is based on the failure mode data collected from a first system. It is further noted that applicant's specification indicates that a "loss event" is merely any event which negatively affects the modeled system or component (page 4, line 5), and that the claimed "false start event" is merely a loss event that occurs quickly relative to the expected life of the system (page 5, line 3). Hence, any reliability simulator that models negative system effects over time, and the expected system life (i.e. MTBF), would inherently meet these limitations by simply modeling negative system effects as discrete events which occur in a short (quick) time relative to the MTBF (expected life). (see 102(a) rejection, BlockSim 1.0, below)

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Per independent claims 17: This claim includes limitations relating to receiving values for parameters calculated from data collected from a first system and determining if a second system encounters a loss event. MPEP 2171 requires the following:

2171 Two Separate Requirements for Claims Under 35 U.S.C. 112, Second Paragraph

The second paragraph of 35 U.S.C. 112 is directed to requirements for the claims:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

There are two separate requirements set forth in this paragraph:

(A) the claims must set forth the subject matter that applicants regard as their invention; and

*(B) the claims must particularly point out and **distinctly define the metes and bounds of the subject matter that will be protected by the patent grant.***

The first requirement is a subjective one because it is dependent on what the applicants for a patent regard as their invention. The second requirement is an objective one because it is not dependent on the views of applicant or any particular individual, but is evaluated in the context of whether the claim is definite — i.e., whether the scope of the claim is clear to a hypothetical person possessing the ordinary level of skill in the pertinent art.

*In this case, it is unclear specifically where and what the claimed “receiving values for a plurality of parameters” consists of, or how the values and parameters relate to the claimed first system and second system determination result. The examiner therefore submits that claims 17-22 do not **distinctly define the metes and bounds of the claimed subject matter** because it is unclear specifically where the limitations of applicants claimed invention begin and end. In general, the language of the claims 17-22 fails to point out specifically what is **included** or **excluded** by the language of the claims and a person of ordinary skill in the art would be at odds to determine the exact scope of the claim.*

Dependent claims 18-22 inherit the deficiency of the claims from which they depend.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 18, 20, and 20 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter. *The Examiner submits that claims 18, 20, and 21 are not tangible because Applicant's have not recited any limitations that define the signal-bearing medium.*

*An invention which is eligible for patenting under 35 U.S.C. § 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, **tangible**, and useful result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a "**useful, concrete and tangible result**." The test for practical application as applied by the examiner involves the determination of the following factors:*

(1) "Useful" - The Supreme Court in Diamond v. Diehr requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished.

*(2) "**Tangible**" - Applying In re Warmerdam, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In Warmerdam the abstract idea of a data*

structure became capable of producing a useful result when it was fixed in a tangible medium which enabled its functionality to be realized.

(3) "Concrete" - Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

The Examiner therefore respectfully submits, under current PTO practice, that the claimed invention does not recite tangible result because the claimed signal-bearing medium recited in claim 18 is undefined. Dependent claims 20 and 21 inherit this defect as being dependent from claim 18.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. *Claims 1-22 are rejected under 35 U.S.C. 102(a) as being anticipated by "A*

Quick Overview of ReliSoft's BlockSim", Product Description BlockSim 1.0,

ReliaSoft Corp. Jan. 2000.

Independent claim 1 is drawn to:

A simulation process, comprising the following steps:

- collecting first system failure modes data*
- parameterizing data for computer program simulating second system*

- executing computer program simulating second system, where executing step comprises determining whether second system will encounter a first false start event based upon data collected from first system.

Regarding independent claim 1: BlockSim 1.0 is a commercially available Reliability and Maintainability simulator capable of performing a complete system analysis using reliability block diagrams (RBD's) for system definition and performs complex system analysis both analytically and through discrete event simulation. BlockSim 1.0 teaches the elements of the claimed limitations of the present invention as follows:

- collecting first system failure modes data: BlockSim 1.0 allows the user to model the RBD's based on failure mode data collected from field data, vendor data, or performance analysis. (see pages 1, 2, 5)

- parameterizing data for computer program simulating second system: BlockSim 1.0 provides a GUI based user input for inputting failure mode and system data parameters (parameterized) into the reliability simulator program (i.e. second system). (see page 2)

- executing computer program simulating second system, where executing step comprises determining whether second system will encounter a first false start event based upon data collected from first

system: The examiner first notes that, as recited above, any reliability simulator that uses known (collected) failure data as part of the simulation model, meets the requirements for collecting a first system failure mode data and executing a computer program simulating a second system as recited in claim 1. That is, the second system, namely the platform running the reliability simulator, is executing a simulation model that

is based on the failure mode data collected from a first system. BlockSim 1.0 clearly teaches this limitation because the reliability block diagrams (RBD's) used by BlockSim can represent the failure mode of a component, subassembly, or assembly with multiple properties that can be collected from field data, vendor data, or performance analysis. (see pages 1, 2, 5) It is also noted that applicant's specification merely defines a "loss event" as any event that negatively affects the modeled system or component (page 4, line 5), and a "false start event" as a loss event that is quick relative to the expected life of the system (page 5, line 3). BlockSim 1.0 also clearly teaches these limitations since negative effects on the components and system (represented by RBD's) are modeled as discrete events that include failure and repair distribution (Weibull, mixed, lognormal, normal, exponential, downtime, uptime, mean availability, expected failures, point availability, etc.) for series, parallel, complex and K out of N configurations. (see pages 2, 3) Therefore, determining a "false start event" is inherent BlockSim since the negative effects (loss events) on the RBD's can be represented (modeled) as being short (quick) relative to the expected life (MTBF) of the system.

Per dependent claim 2: BlockSim 1.0 models first system failure mode data on a second (same) system as noted above.

Per dependent claim 3: BlockSim 1.0 models any type or repairable mechanical (i.e. manufacturing) system. (pages 4, 5)

Per dependent claim 4: BlockSim 1.0 discloses analyzing a first (or second) system to determine failure modes. (page 1, 4)

Per dependent claim 5: BlockSim 1.0 calculates the uptime for failure modes.
(page 2)

Per dependent claim 6: Determining which failure mode causes a loss event would be inherent in BlockSim 1.0 since the RBD's model both the failure mode and loss events. (see: pages 1-3)

Per dependent claim 7: BlockSim 1.0 calculates the downtime for failure modes.
(page 2).

Per dependent claim 8: BlockSim 1.0 provides multiple distributions for failure modeling including Weibull, exponential, normal, lognormal, etc. (see page 2)

Per dependent claim 9: BlockSim 1.0 provides multiple (cumulative) failure properties for failure modes. (page 1)

Per dependent claims 10 and 11: Calculating cumulative and competing failure modes and determining related loss event causes would be inherent in BlockSim 1.0 since the RBD's model multiple failure modes, loss event properties, and the uptime/downtime of failure modes. (see: pages 1-3)

Per dependent claim 12: BlockSim 1.0 calculates the RBD's model for multiple failure modes, loss event properties, and the uptime/downtime of failure modes. (see: pages 1-3) Therefore, determining a second "false start event" is also inherent BlockSim since the negative effects (loss events) on the RBD's can be represented (modeled) relative to the downtime for a second loss event. BlockSim 1.0 provides multiple (cumulative) failure properties for failure modes. (page 1)

Per dependent claim 13-15: BlockSim 1.0 calculates (outputs) the system reliability and availability (pages 1, 3, 4).

Per dependent claim 16: BlockSim 1.0 provides facilities for modifying the system RBD parameters as result of optimization (page 3) and analysis (page 4) processes.

Per independent claim 17: As previously cited above, BlockSim 1.0 clearly teaches receiving values for multiple data parameters relating to failure mode and negative effects on the components and system (represented by RBD's) for a first and second system. These parameters are used to model discrete events that include failure and repair distribution (Weibull, mixed, lognormal, normal, exponential, downtime, uptime, mean availability, expected failures, point availability, etc.) for series, parallel, complex and K out of N configurations. (see pages 2, 3) Therefore, determining a "false start event" is inherent BlockSim since the negative effects (loss events) on the RBD's can be represented (modeled) as being short (quick) relative to the expected life (MTBF) of the system.

Per dependent claims 18-22: This group of claims merely claims the computer program product with machine readable instructions for carrying out the reliability simulation limitations of claim 17. BlockSim 1.0 is a commercially available software product, which operates on a commercially available PC or workstation platform, that is provided embodied on magnetic or optical medium, or via a computer network via the internet. (see page 6)

Conclusion

8. *The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Careful consideration should be given prior to applicant's response to this Office Action.*

"Field Data is Reliability Information: Implementing an Automated Data Acquisition and Analysis System", J. Jauw et al, Proceedings IEEE Annual Reliability and Maintainability Symposium, Jan. 2000 teaches reliability and maintainability simulators.

"A Quick Overview of ReliaSoft's BlockSim", Product Description BlockSim 1.0, ReliaSoft Corp. Jan. 2000 teaches reliability and maintainability simulators.

"Comparison of Reliability-Availability Mission Simulators", R. Willis, Society of Reliability Engineers, 2002 teaches reliability and maintainability simulators.

"Modeling & Analysis for Multiple Stress-Type Accelerated Life Data", A. Mettas, Proceedings IEEE Annual Reliability and Maintainability Symposium, Jan. 2000 teaches reliability and maintainability simulators.


"Reliability Allocation and Optimization for Complex Systems", A. Mettas, Proceedings IEEE Annual Reliability and Maintainability Symposium, Jan. 2000 teaches reliability and maintainability simulators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the

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examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached at 571-272-3780. The Official Fax Number is: (703) 872-9306

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